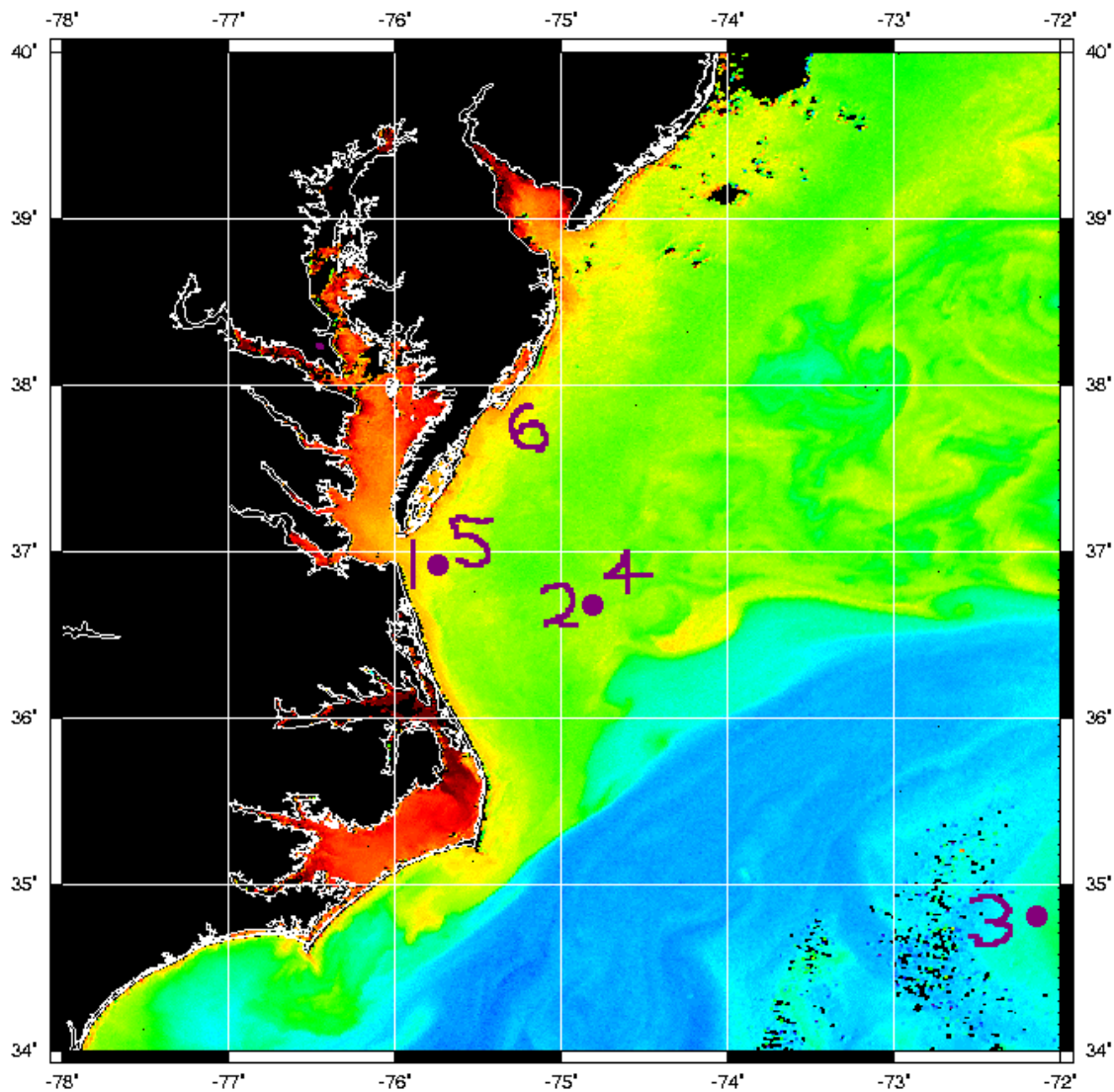


Illustration of CV-580 Flight in Support of GACP-AVHRR

Positions 1-6 (SeaWiFS map) are approximate and described in text below the map.



This is a description of plans for at least one special flight of the CV-580 to the "blue" ocean in support of GACP retrievals of AOT with AVHRR on NOAA-16 (crossing ~2:30 PM local).

The flight will occupy about one half of a CV-580 mission and concentrate on AOT measurements (AATS-14) at ~100-200m AGL, with 6 brief interruptions to sample spectral BRDF of the sea with the CAR below 1 km AGL in 3 km diameter circles. Favorable NOAA-16 overpasses (definite backscattering of sun from sea to AVHRR with moderate satellite viewing angle) are on July 16, 17, 18, 26, 27, and 28. The

flight would be scheduled for one of those dates and prefer clear conditions. Clear sky over COVE itself or any of the buoys is not an absolute requirement. But most of the low level AOT flight has to catch clear sky; and each of the brief CAR BRDF circles would be made over a clear sky patch on the path.

The "blue" ocean flight would begin ~1:30 PM local, and thus could be the second half of a CV-580 operation that supports Terra (overpass near local noon). Note that July 17 and 26 are also MISR days. I don't know if MISR (hello, Ralph) would support such a ~1:30 PM mission for the CV-580. If not, the blue ocean mission would fly on another day.

1. Start with a low level CAR BRDF (~1:30 pm) in a clear patch near COVE; altitude of BRDF is to be determined (TBD), but it will be under 1000m. Wenying Su and Charles Gatebe will decide on the altitude.

2. Proceed straight and level at ~100m to buoy 44014 (36.58N, 74.84W - it has directions, periods and heights of wind waves and the same for swell waves - the "best" wave buoy), making another clear patch CAR BRDF under 1000m.

3. Proceed straight and level at ~100m toward buoy 41001 (34.68N, 72.23W). The low altitude gives a good look at both column AOT (AATS-14) and sea albedo (PSPs). The direction from buoy 44014(36.58N, 74.84W) is roughly SE. The exact direction will be specified later; we may head more toward S to obtain clearer water; we seek a low chlorophyll concentration, as identified by the most recent (NOT the above) SeaWiFS data. The flight will proceed as far to sea as allowed. It will then shoot a CAR BRDF. Duration of flight from COVE is ~1 hour to this point, which coincides with AVHRR overpass (~2:30 PM local). The furthest point will be somewhere in the triangle formed by the buoys 44014, 41001 and DSLN7 (35.15N, 75.39W), which will enable us to estimate the surface winds and waves.

4. Return to buoy 44014 vicinity and shoot clear patch CAR BRDF.

5. Return to COVE vicinity and shoot clear patch CAR BRDF.

*** Simultaneous with CV-580 over COVE, OV-10 flies 2x2 box (or "daisy" pattern if only a clear patch) at 200m AGL. OV-10 concludes by buzzing COVE at 30m AGL, to check OV-10 radiometers with COVE. Both aircraft are over the same target (but different altitudes), which requires coordination.

6. CV-580 return to Wallops straight and level at 1km.

Simultaneous with CV-580, OV-10 "chases" the faster CV-580 for 5 minutes. With both aircraft at 1km, they survey a swath of sea ~2km x ~15 km. Upwelling views from both aircraft will be very nearly the same, as will downwelling views.

If the ### simultaneous "chase" flight is not allowed by the Safety Review, we should seek a 5 minute tandem (side by side) flight at the same speed (relatively slow for CV-580 but high for OV-10). The flight will compare the radiometers on CV-580 and OV-10.

There would be at least one such flight of the CV-580. It would take ~2 1/2 hours, about one half of the CV-580 resource for one day. The flight will validate AVHRR retrievals of AOT over the open sea; provide supporting information on the related sea optics used in the retrieval; provide broadband fluxes for aerosol forcing; and allow comparison of the CV-580 broadband with OV-10 broadband.

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